WHAT IS CLAIMED IS:

1. An injection molding apparatus, comprising:

an at least partially transparent nozzle having a nozzle body and a nozzle channel that receives a fluid material at an inlet, the fluid material having a pressure induced flow causing the fluid material to flow along an axis of the nozzle channel from the inlet to an outlet; and

a radiant energy heating device that heats the nozzle channel to maintain the fluid material in a fluid state.

2. The injection molding apparatus of claim 1, further comprising:

a manifold having a manifold channel and an outlet, the manifold channel receiving the fluid material under pressure, which leaves the manifold channel through the outlet to enter the inlet of the nozzle, wherein an axis of the outlet of the manifold channel is coaxial with the axis of the nozzle channel.

3. The injection molding apparatus of claim 1, wherein a surface of the nozzle comprises an internally reflective layer.

4. The injection molding apparatus of claim 3, wherein the radiant energy heating device directs at least part of the radiant energy towards the internally reflective layer.

5. The injection molding apparatus of claim 3, wherein the internally reflective layer is an infrared reflective coating selected from the group consisting of high reflective coatings, dielectric total reflector coatings and special reflective coatings that filter certain radiant energy frequencies.

6. The injection molding apparatus of claim 3, wherein the internally reflective layer is a metal fused to an outer surface of the nozzle and the metal is selected from the group consisting of aluminum or gold.

7. The injection molding apparatus of claim 1, wherein a surface of the nozzle channel comprises a radiant energy absorbing layer.

8. The injection molding apparatus of claim 7, wherein the radiant energy absorbing layer is a coating selected from the group consisting of titanium carbide and antireflective coatings.

9. The injection molding apparatus of claim 7, wherein the radiant energy absorbing layer is a metal sleeve.

10. The injection molding apparatus of claim 1, wherein:

a surface of the nozzle comprises an internally reflective layer;

a surface of the nozzle channel comprises a radiant energy absorbing layer; and

radiant energy from the radiant energy heating device is reflected off the internally reflective layer and absorbed by the radiant energy absorbing layer to heat the nozzle channel.

11. The injection molding apparatus of claim 1, further comprising:

a mold cavity that receives the fluid material from the nozzle channel via a mold gate.

12. The injection molding apparatus of claim 1, further comprising:

a cavity in the nozzle body, wherein the radiant energy heating device is located in the cavity.

13. The injection molding apparatus of claim 12, wherein the cavity is formed in an inlet surface of the nozzle.

14. The injection molding apparatus of claim 12, wherein the cavity is a generally ring-shaped channel that surrounds the nozzle channel.

15. The injection molding apparatus of claim 1, wherein the nozzle comprises a first nozzle portion and a second nozzle portion, the first nozzle portion having a first mating surface and the second nozzle portion having a second mating surface, the first mating surface and the second mating surface being in abutment with one another.

16. The injection molding apparatus of claim 15, further comprising:

a cavity in the nozzle body, wherein the radiant energy heating device is located in the cavity, wherein the cavity is provided in one of the first mating surface and the second mating surface.

17 The injection molding apparatus of claim 15, further comprising:

a cavity in the nozzle body, wherein the radiant energy heating device is located in the cavity, wherein the cavity is partly formed in the first mating surface and partly formed in the second mating surface.

18. The injection molding apparatus of claim 1, wherein the radiant energy heating device comprises a radiation source.

19. The injection molding apparatus of claim 18, wherein the radiation source emits waves substantially in an infrared range or above.

20. The injection molding apparatus of claim 1, wherein the at least partially transparent material is selected from the group consisting of glass-ceramic, industrial sapphire, fused silica, Pyrex, or optical glass materials.

21. The injection molding apparatus of claim 1, wherein a tip of the nozzle includes a radiant energy absorbing layer coupled to an outer surface thereof.

22. The injection molding apparatus of claim 1, wherein:

the nozzle has an elliptically-shaped cross-section;

the nozzle channel is located along a first focal point axis of the elliptically-shaped cross-section; and

the radiant energy heating device is located at least partially along a second focal point axis of the elliptically-shaped cross-section, such that the radiant energy heating device is parallel to the nozzle channel.

23. The injection molding apparatus of claim 22, wherein the nozzle channel receives waves from all incidence angles.

24. The injection molding apparatus of claim 1, wherein the nozzle includes a nozzle tip and the apparatus further comprises:

a radiant energy waveguide having a distal end that emits the radiant energy, wherein the waveguide extends through the nozzle tip, such that the nozzle tip absorbs the radiant energy emitted from the waveguide.

25. The injection molding apparatus of claim 1, wherein the nozzle includes a nozzle tip and the apparatus further comprises:

a valve pin extending through the nozzle channel, the valve pin having an end for selectively closing the outlet; and

a radiant energy waveguide having a distal end that emits the radiant energy, wherein the waveguide extends through the a bore provided in the valve pin, such that the end of the valve pin absorbs the radiant energy emitted from the waveguide.

26. A method for heating a fluid flow in an injection molding process, the method comprising:

receiving a pressure induced fluid flow in an at least partially transparent nozzle having a nozzle body and a nozzle channel, such that the fluid flows along an axis of the nozzle channel from an inlet to an outlet; and

using radiant energy to heat the nozzle channel to maintain the fluid material in a fluid state.

27. The method of claim 26, further comprising forming an internally reflective layer on a surface of the nozzle.

28. The method of claim 27, further comprising directing the radiant energy towards the internally reflective layer.

29. The method of claim 27, wherein the internally reflective layer is an infrared reflective coating selected from the group consisting of high reflective coatings, dielectric total reflector coatings and special reflective coatings that filter certain radiant energy frequencies.

30. The method of claim 27, wherein the internally reflective layer is a metal fused to an outer surface of the nozzle and wherein the metal is selected from the group consisting of aluminum or gold.

31. The method of claim 26, further comprising forming a radiant energy absorbing layer on a surface of the nozzle channel.

32. The method of claim 31, wherein the radiant energy absorbing layer is a coating selected from the group consisting of titanium carbide and antireflective coatings.

33. The method of claim 31, wherein the radiant energy absorbing layer is a metal sleeve.

34. The method of claim 26, further comprising:

forming an internally reflective layer on a surface of the nozzle;

forming a radiant energy absorbing layer on a surface of the nozzle channel; and

reflecting radiant energy from the radiant energy heating device off the internally reflective layer to be absorbed by the radiant energy absorbing layer to heat the nozzle channel.

35. The method of claim 26, further comprising forming a cavity in the nozzle body, wherein the radiant energy emanates from the cavity.

36. The method of claim 26, further comprising:

forming the nozzle from a first nozzle portion having a first mating surface and a second nozzle portion having a second mating surface; and

abutting the first mating surface and the second mating surface with one another.

37. The method of claim 36, further comprising:

forming a cavity in at least one of the first mating surface and the second mating surface; and

emanating the radiant energy from the cavity.

38. The method of claim 26, further comprising forming a radiant energy absorbing layer on a tip of the nozzle.

39. The method of claim 26, further comprising:

forming the nozzle with an elliptically-shaped cross-section;

positioning the nozzle channel along a first focal point axis of the elliptically-shaped cross-section; and

positioning a source of the radiant energy at least partially along a second focal point axis of the elliptically-shaped cross-section.

40. The method of claim 39, wherein the nozzle channel receives waves from all angles of incidence using one of the source of the radiant energy.

41. The method of claim 26, further comprising:

emitting the radiant energy from a distal end of a waveguide that extends through a nozzle tip, such that the nozzle tip absorbs the radiant energy emitted from the waveguide.

42. The method of claim 26, further comprising:

positioning a valve pin through the nozzle channel, the valve pin having an end for selectively closing the outlet; and

positioning a waveguide, which has a distal end that emits the radiant energy, through a bore provided in the valve pin, such that the end of the valve pin absorbs the radiant energy emitted from the waveguide.

43. The injection molding apparatus of claim 1, wherein the nozzle includes a nozzle tip that includes the at least partially transparent portion of the nozzle and the apparatus further comprises:

a radiant energy guiding section of the nozzle tip that has a distal end that emits the radiant energy, wherein the guiding section in located in the nozzle tip, such that at least a portion of the nozzle tip absorbs the radiant energy emitted from the guiding section.

44. An injection molding apparatus, comprising:

a nozzle having a nozzle body and a nozzle channel that receives a fluid material at an inlet, the fluid material having a pressure induced flow causing the fluid material to flow along an axis of the nozzle channel from the inlet to an outlet; and

a radiant energy heating device that heats the nozzle channel to maintain the fluid material in a fluid state.

45. A method for heating a fluid flow in an injection molding process, the method comprising:

receiving a pressure induced fluid flow in a nozzle having a nozzle body and a nozzle channel, such that the fluid flows along an axis of the nozzle channel from an inlet to an outlet; and

using radiant energy to heat the nozzle channel to maintain the fluid material in a fluid state.